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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,116	12/16/2003	Josef Maatuk		3623

7590 01/04/2006  
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EXAMINER

WEST, PAUL M

ART UNIT PAPER NUMBER

2856

DATE MAILED: 01/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/736,116

Applicant(s)

MAATUK, JOSEF

Examiner

Paul M. West

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 16-30 is/are pending in the application.
- 4a) Of the above claim(s) 22-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 16-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. As to claim 16, "coating of said heater" in line 22 of the claim lacks antecedent basis.

4. As to claim 17, the phrase "opposite plurality" does not make sense. It is assumed that Applicant means --opposite polarity--, and this is how the claim has been interpreted in the art rejections that follow.

5. As to claim 18, the claim should end with a --.-- (period) and not a " ;" (semi-colon).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zimmermann et al. (2003/0183001 A1).

As to claim 16, Zimmerman et al. teach an apparatus for determining a liquid level in a container, the apparatus comprising: a substrate 22 having a longitudinal axis; a heater wire 32 secured along the longitudinal axis of one face of the substrate 22; a plurality of thermocouples 44,52,56 in longitudinally spaced relationship and located very close to the heater wire 32 on one side of the substrate, the thermocouples having hot and cold junctions connected serially; a plurality of cold thermocouple junctions provided on one side of the substrate in longitudinally spaced relationship and positioned in a laterally spaced relationship to a plurality of hot thermocouple junctions; an isothermal block means 60 for keeping the cold junction of a thermocouple at the same temperature; a coating for the heater, thermocouples and substrate which is thermally conductive, electrically insulating, chemically inert and liquid impermeable (Par. 0044, lines 1-9); a means 26,38 for applying electrical power to heat the heater wire 32, wherein both ends are connected to the electrical power applying means, the apparatus adapted to be positioned within a vessel containing a volume of liquid such that the thermocouples will cooperate to generate a signal indicative of the continuous level of liquid within the vessel; and a data acquisition means comprising a signal conditioning circuit 24 connected to the thermocouples, wherein the signal conditioning circuit and a power supply circuit are provided on the substrate. Zimmermann et al. do not explicitly teach a display, however it would have been obvious to one of ordinary skill in the art to connect some sort

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of display to the apparatus, as it is well-known that the data from any kind of sensing apparatus cannot be read if it is not outputted to some kind of display.

8. As to claim 17, Zimmermann et al. teach the plurality of hot and cold thermocouple junctions generating a signal of opposite polarity (Par. 0035, lines 9-11).

9. As to claim 18, Zimmermann et al. teach the thermocouples of the apparatus operating to generate a signal indicative of a pressure in the vessel in which it is disposed (Par. 0030, lines 4-5).

10. As to claim 19, Zimmermann et al. teach a power source for supplying power to the heater (Par. 0031, lines 4-10).

11. As to claim 20, Zimmermann et al. teach the signal from the thermocouples being supplied to signal conditioning circuitry 24.

12. As to claim 21, Zimmermann et al. teach pairs of thermocouple junctions (e.g. 44 and 52) positioned along a line extending generally parallel to the surface of the liquid 11.

### ***Conclusion***

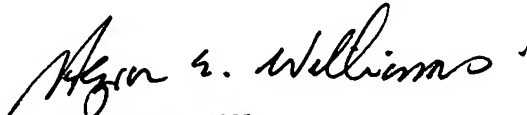
13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Note that McCulloch (4,785,665) and Maatuk (2002/0100318 A1) teach liquid level sensors using a series of thermocouple junctions and a heat source.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul M. West whose telephone number is (571) 272-8590. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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